

**ARIZONA GAME AND FISH DEPARTMENT
HERITAGE DATA MANAGEMENT SYSTEM**

Animal Abstract

Element Code: AFCJB13170

Data Sensitivity: No

CLASSIFICATION, NOMENCLATURE, DESCRIPTION, RANGE

NAME: *Gila seminuda*
COMMON NAME: Virgin River Chub, Virgin Chub
SYNONYMS: *Gila robusta seminuda*
FAMILY: Cyprinidae

AUTHOR, PLACE OF PUBLICATION: Cope and Yarrow, 1875: 666. Evermann and Rutter, 1895: 483. Jordan and Gilbert, 1883: 230. Jordan and Evermann, 1896: 228. Jordan et al., 1930: 114.

TYPE LOCALITY:

TYPE SPECIMEN:

TAXONOMIC UNIQUENESS: Minckley (1973) identifies 3 subspecies of *Gila robusta* in Arizona: *Gila robusta robusta* (Baird and Girard), *Gila robusta grahamsi* (Baird and Girard), and *Gila robusta seminuda* (Cope and Yarrow). The taxonomy of the '*Gila* complex', as some authors refer to it, is not completely understood. Taxonomic studies underway may clarify some of the questions. Ellis (1914), Miller (1946c), and LaRivers and Trelease (1952) all have suggested that *seminuda* represents an intergrade between *robusta* and *elegans*; Holden and Stahlnaker (1970) consider *seminuda* to be a valid subspecies, as did Minckley. Others consider it to be a 'geographic race' of the *Gila* species. DeMarais et al. (undated) consider *G. seminuda* as a distinct species whose origins resulted from hybridization between *G. elegans* and *G. robusta*.

DESCRIPTION: Medium-sized, silvery minnow, generally less than 15.0 cm (5.9 in), reaching lengths of 25.0 cm (9.8 in). Dorsal, anal, and pelvic fin-rays 9 or 10. Back, breast, and part of belly with small, deeply embedded scales, naked in some individuals. Length of head divided by depth of caudal peduncle typically results in a ratio of 4.0 to 5.0 (rarely exceeding 5.0, which approximates *G. elegans*). Scales typically lacking basal radii or with extremely faint lines.

AIDS TO IDENTIFICATION:

ILLUSTRATIONS: B&W photo (Minckley 1973:103)
Color drawing (Page and Burr 1991)

Color photo (Rinne and Minckley 1991:23)

TOTAL RANGE: *Gila seminuda* is restricted to the Virgin River in Arizona, Nevada, and Utah.

RANGE WITHIN ARIZONA: Virgin River.

SPECIES BIOLOGY AND POPULATION TRENDS

BIOLOGY:

REPRODUCTION: Probably similar to other roundtail chubs. Roundtails breed during spring and early summer in pools that are often associated with cover (Rinne and Minckley 1991).

FOOD HABITS: Omnivorous, probably opportunistic feeders, feeding on drift, algae, even terrestrial vertebrates.

HABITAT: "In its native habitat, *G. r. seminuda* occurs only in the mainstream of the Virgin River, and very rarely in the immediate mouths of its major tributaries. It is most common in deeper areas where waters are swift, but not turbulent, and most often is associated with boulders or other types of cover" (Minckley 1973). Water in the Virgin River is generally somewhat warm, turbid, and saline.

ELEVATION: Current known locations between 1,540 - 2,360 ft. (470 - 720 m).

PLANT COMMUNITY:

POPULATION TRENDS: Continuing to decline. An 1988 attempt to remove red shiners from 35 km of habitat on the Virgin River decimated fish populations at least 75 km downstream. Greatly reduced by habitat modifications, 10-20 individuals in a pool are considered a large population.

SPECIES PROTECTION AND CONSERVATION

ENDANGERED SPECIES ACT STATUS: LE (USDI, FWS 1989)
Listed Critical Habitat (USDI, FWS 2000)
[C1 USDI, FWS 1985]

STATE STATUS: WC (AGFD, WSCA in prep)
[SE AGFD, TNW 1988]

OTHER STATUS: Forest Service Sensitive (USDA, FS Region 3 1988, 1999)

Sensitive, Nevada
Protected, Utah

E, American Fisheries Society

MANAGEMENT FACTORS: **Threats include:** widespread modification and reduction of habitat; dewatering by agricultural diversion; increased temperature, salinity, and turbidity of the Virgin River; introduction of non-native fish and parasite species. **Management needs:** protect and enhance habitat, including water quantity and quality; ameliorate effects of nonnative fish species in chub waters; re-establish additional populations.

PROTECTIVE MEASURES TAKEN:

SUGGESTED PROJECTS: Further analysis of the role of hybridization in the evolution of the *Gila* species and subspecies.

LAND MANAGEMENT/OWNERSHIP: Bureau of Land Management - Arizona Strip Field Office; Private.

SOURCES OF FURTHER INFORMATION

REFERENCES:

- Arizona Game and Fish Department. 1988. Threatened Native Wildlife in Arizona. p. 5.
- Arizona Game and Fish Department. In prep. Wildlife of special concern in Arizona. Arizona Game and Fish Department Publication. Phoenix, Arizona. 32 pp.
- DeMarais, B.D., T.E Dowling, M.E. Douglas, W.L. Minckley, and P.C. Marsh. Hybrid origin of *Gila seminuda* (Pisces: Cyprinidae): Implications for evolution and conservation (speciation/morphological variation/genetic variation/mtDNA). Department of Zoology and Center for Environmental Studies, Arizona State University, Tempe. pp. 27.
- Heckman, R.A., J.E. Deacon, and P.D. Greger. 1986. Parasites of the Woundfin Minnow, *Plagopterus argentissimus*, and other endemic fishes from the Virgin River, Utah. Great Basin Naturalist 46(4):662-676.
- Minckley, W.L. 1973. Fishes of Arizona. Arizona Game and Fish Department, Phoenix. pp. 103-104.
- Page, L.M. and B.M. Burr. 1991. A field guide to freshwater fishes: North America, north of Mexico. Houghton Mifflin Co., Boston. pp. 72-74.
- Rinne, J.N. and W.L. Minckley. 1991. Native fishes of arid lands: a dwindling resource of the desert southwest. U.S. Department of Agriculture, Forest Service, General Technical Report RM-206. Rocky Mountain Forest and Range Experiment, Fort Collins, Colorado. pp. 22-23.
- USDA, Forest Service Region 3. 1988. Regional Forester's Sensitive Species List.
- USDA, Forest Service Region 3. 1999. Regional Forester's Sensitive Species List.
- USDI, Fish and Wildlife Service. 1985. Endangered and Threatened Wildlife and Plants; Review of Vertebrate Wildlife; Notice of Review. Federal Register. 50(181):37960.

USDI, Fish and Wildlife Service. 1989. Endangered and Threatened Wildlife and Plants; Determination of Endangered Status for the Virgin River Chub. Federal Register 54(163):35305-35311.

USDI, Fish and Wildlife Service. 2000. Endangered and Threatened Wildlife and Plants; Designation of Critical Habitat for the Woundfin and Virgin River Chub. Final Rule. Federal Register 65(17): 4140-4155.

MAJOR KNOWLEDGEABLE INDIVIDUALS:

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ADDITIONAL INFORMATION:

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